



## Case report

## Death of a driver due to an atypical missile

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## ABSTRACT

A road traffic accident of an unusual nature is presented. The driver of a pickup cab sustained fatal injuries by a large piece of concrete (missile) set in motion consequent to a car crashing onto the centre island of a highway.

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## 1. Introduction

It is estimated that 1.2 million people are killed and 50 million are injured worldwide annually as a result of road accidents.<sup>1</sup> In the developing countries, the majority of the victims of road accidents are pedestrians whereas in the developed countries, drivers of vehicles account for the bulk of the fatalities.<sup>2</sup> In road accidents, injuries usually result as a direct consequence of collision between two or more vehicles, vehicle and a pedestrian or vehicle and a stationary object. Unusual accidents such as, a branch of a tree ramming into a moving vehicle causing the death of a driver during a storm,<sup>3</sup> a wooden fence post piercing through windscreens leading to mediastinal impalement injuries<sup>4</sup> and thoracoabdominal impalement injuries of the driver and the passenger following a motor vehicle crashing onto a wooden fence<sup>5</sup> have been reported. Death or injuries of drivers and occupants of vehicles from missiles originating from firearms or bomb explosions are not uncommon. The death of a child pedestrian from injuries caused by a stone striking her head had been reported<sup>6</sup> where the stone which was lying on the road had been set in motion (flying missile) by a vehicle running over it, causing the fatal injuries.

The case under discussion is an unique accident, hitherto unreported in medical literature, where a car moving at high speed

crashed onto a piece of concrete (lying on a highway) and set it in motion. The piece of concrete weighing 7 kg then crashed through the front windscreen of an oncoming pickup cab and caused a fatal head injury to its driver.

## 2. Case report

The police called the Judicial Medical Officer (Forensic Pathologist) to a scene of a suspicious death one morning. On arrival at the scene on the South bound divided highway from the capital Colombo, it was observed that there was a pickup cab on the centre lane with the dead body of the driver in his seat. A closer examination of the victim revealed a bleeding head injury. The face was covered with blood and there was blood dripping down from the head onto the chest. According to the front seat passenger of the pickup cab, at around 11 pm the previous night, while they were proceeding away from the capital he noticed a vehicle approaching in the opposite direction at high speed. Then the oncoming vehicle had suddenly veered off the road, losing its path to travel along the centre island and had finally come to a halt about 15 m ahead of the pickup cab. Immediately after the other vehicle lost control, he had seen a dark object crashing through the front windscreen of his vehicle. In the next moment the driver of his cab had collapsed on the seat with a head injury. At the time of the visit to the scene, the position of the pickup indicated that it had not deviated from its path of travel. The second vehicle was later found to be a car, driven by a man who was returning home after a party where he had been consuming alcohol. He had been driving

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the car at around 110 km/h (speed limit at the location of the accident was 50 km/h). He had been wearing the seat belt and with the deployment of the air bag had escaped with only minor injuries to his face and knees. He admitted to driving at high speed and said that he lost control of the vehicle and crashed onto the edge of the centre island. The car had then kept moving forward on the centre island with the wheels on either side of it until it had come to a halt.

### 2.1. Inspection of the pickup cab and the car

The front and the rear windcreens of the pickup cab were shattered creating two large deficiencies in line with the driver's seat. The interior of the driver's door, his seat, the floor beneath it and the dashboard were soiled with blood. Shattered pieces of windscreen were found on the floor of the cab in the front and in the cargo bed. On the rear seat a part of extruded brain matter was found. There was a large piece of concrete weighing 7 kg lying in the cargo bed of the cab with blood stains on it. Inspection of the upholstery of the roof of the cab showed longitudinally placed new tears extending from front to back at several places. The deficiencies in the windcreens mentioned above and the tears of the upholstery of the roof were all placed in the same direction. There were no other damages to the pickup cab to suggest a direct collision with any vehicle or object. Inspection of the car revealed extensive damage to the right side of the, front bumper, front part of the under carriage and engine. The sump, front suspensions and steering rack were fragmented suggesting heavy impact against a blunt and hard object. A witness residing opposite the crash site disclosed that a few days before the accident, he had observed the large piece of concrete lying on the centre island of the road where the car had made the initial impact. The magistrate and scientific officers from the forensic laboratory too were involved in the examination of the vehicles and the scene.

### 2.2. Autopsy

The body was that of a 28 year old male. The only injury on the body was seen on the head and consisted of an area of depression (0.3–1.7 cm) on the right parieto-temporal area with an irregular laceration 13 cm × 8–11 cm directed antero-posteriorly. The surrounding scalp showed multiple abrasions and contusions. Few pieces of glass were embedded in the injury. The underlying skull showed extensive depressed comminuted fractures involving the right frontal, parietal and temporal bones with extensions to the base of the skull. Brain matter was seen to have extruded through the scalp laceration. There were diffuse sub-arachnoid haemorrhages over the right fronto-parietal lobes. Underneath the depressed fractures there were diffuse contusions and wide-spread lacerations of the dorsal surface of right frontal, parietal and temporal lobes of the brain. Lungs showed areas of bilateral consolidation collapse due to aspiration of blood percolated through the fractures of the base of the skull. There were no other external or internal injuries other than the aforementioned head injury. The heart and other organ systems were unremarkable. Blood was negative for alcohol and drugs. The blood stains found on the piece of concrete and those within the cabin of the pickup cab serologically matched with the blood sample obtained from the deceased at autopsy.

## 3. Discussion

The findings of the scene visit including the observations made during inspection of the two vehicles involved in the accident and the autopsy, afforded a satisfactory explanation for the mechanism of causation of the injury and death of the driver of the pickup cab. The impact of the car on the centre island had set in motion a series of events. It had caused the piece of concrete weighing 7 kg which was

lying at the edge of the centre island to travel nearly 15 m in the air and crash through the front windscreen of the pickup cab injuring the driver. Then it had exited through the rear windscreen to finally land in the cargo bed of the cab. The presence of brain matter on the rear seat indicated the direction of travel, while the blood stains on the piece of concrete proved that it had come in contact with the deceased.

The nature and location of the head injury, absence of any other injuries from impact against structures such as the steering wheel and dashboard were suggestive of the head injury to have been caused by the flying missile. The large depression on the right side of the head associated with underlying depressed comminuted fractures of the skull were consistent with injuries that could have been caused by the piece of concrete found in the cargo bed of the pickup cab. Although the victim was not wearing the seat belt there was no injury on the chest and abdomen caused by an impact against the steering wheel because he would have probably slowed down the vehicle on seeing an impending accident. This was corroborated by the absence of any damage to the pickup cab other than the shattered windcreens. The scientific officers from the government analyst's department who examined both vehicles and the piece of concrete confirmed that the damage to the cab was due to the piece of concrete that was flung in the air by the car that was speeding at the time of the crash.

Road accidents are attributable to a variety of causes which include congestion of roads, lack of discipline among road users, mechanical failure of vehicles, driving under the influence of alcohol or drugs, hazardous weather conditions, poor enforcement of traffic laws, fatigue of drivers, speeding and poor road conditions. At least three of the above factors have played a role in the causation of this accident, namely alcohol, speeding and poor road conditions. The driver of the car had admitted to consuming alcohol. The role of alcohol in the causation of road accidents is well established.<sup>7</sup> A study in the USA has shown that deficient road conditions have contributed to 52.7% of fatalities from road crashes.<sup>8</sup> A concerted effort from all stake holders including the road users are needed to curb the deaths, disability and associated social and economic impact on the society, caused by road accidents.

The visit by the police, pathologist, scientific officers and the magistrate to the undisturbed scene of the accident helped to unravel the mystery surrounding this freak accident. Without proper investigation of the scene it could have created suspicion as to the manner of death of the victim.

This case highlights two important issues, the value of the investigators visiting the undisturbed scene of a road accident and the potential hazards posed to motorists by seemingly harmless objects found on the roads.

### Conflict of interest

No conflict of interest.

### Funding

None.

### Ethical approval

No ethical approval is required.

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